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- (c) detecting the presence of a hemodynamically compromising malfunction in the patient;
  - (d) delivering a series of pulses through the patient's body, the series including at least one pulse having a voltage of a normal defibrillation voltage level; and
  - (e) delivering electrical current pulses through the patient's body, the electrical current pulses having a voltage less than a normal defibrillation voltage level, to force contraction in the patient's muscles and to facilitate a minimum level of cardiac output until cessation of the hemodynamically compromising malfunction or until other medical intervention is provided.

Please add new claims 81-142 as follows:

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- 81. (New) The method of claim 36, further comprising the steps of reassessing the presence of a hemodynamically compromising malfunction at predetermined intervals and delivering a further series of pulses, the series including at least one pulse having a voltage of a normal defibrillation level, if a hemodynamically compromising malfunction is present.
  - 82. (New) The method of claim 36, further comprising the steps of reassessing the presence of a hemodynamically compromising malfunction at predetermined intervals and delivering a further series of electrical current pulses, the electrical current pulses having a voltage less than a normal defibrillation voltage level, if a hemodynamically compromising malfunction is present.
  - 83. (New) The method of claim 36, wherein the other medical intervention provided is a defibrillation shock.
  - 84. (New) The method of claim 36, wherein the step of delivering a series of pulses within the patient's body, the series including at least one pulse having a voltage of a normal defibrillation voltage level is performed before the step of delivering electrical

current pulses through the patient's body, the electrical current pulses having a voltage less than a normal defibrillation voltage level.

85. (New) The method of claim 36, wherein the step of delivering electrical current pulses through the patient's body, the electrical current pulses having a voltage less than a normal defibrillation voltage level, is performed before the step of delivering a series of pulses within the patient's body, the series including at least one pulse having a voltage of a normal defibrillation voltage level.

86. (New) The method of claim 85, further comprising the step of delivering a further series of electrical current pulses through the patient's body, the electrical current pulses having a voltage less than a normal defibrillation voltage level.

87. (New) The method of claim 36, wherein the positioning step includes positioning the plurality of electrodes proximate portions of the patient's heart.

88. (New) The method of claim 36, further comprising the step of providing pressure sensing means for detecting the presence of a hemodynamically compromising malfunction in the patient.

89. (New) The method of claim 36, further comprising the steps of monitoring cardiac output and adjusting the electrical current pulse with respect to amplitude to maintain a predetermined level of cardiac output.

90. (New) The method of claim 36, wherein the electrical current pulses are timed to coincide with the natural pumping of the patient's atria.

91. (New) The method of claim 36, wherein a plurality of the electrical current pulses have rounded edges.

92. (New) The method of claim 36, wherein electrical current pulses are delivered at a level to maintain cardiac output for at least about 30 minutes.

93. (New) The method of claim 36, wherein the electrical current pulses are delivered at a rate between about 60 and 200 beats per minute.

94. (New) The method of claim 36, wherein the electrical current pulses are delivered at a rate of less than about 200 pulses per minute.

95. (New) The method of claim 36, wherein the electrical current pulses are between 2 and 100 ms in width.

96. (New) The method of claim 36, wherein the electrical current pulses are between 2 and 50 ms in width.

97. (New) The method of claim 36, wherein the electrical current pulses comprise pulses which are greater than about 140 mA.

98. (New) The method of claim 36, wherein the electrical current pulses each comprise a train of at least 10 narrow pulses.

99. (New) The method of claim 36, wherein the electrical current each comprise several smaller pulses.

100. (New) The method of claim 36, further comprising the step of forming a plurality of the electrical current pulses as a train of up to 50 narrow pulses.

101. (New) The method of claim 36, wherein the electrical current pulses are delivered at a voltage of between 10 and 350 volts.

102. (New) The method of claim 36, wherein the electrical current pulses are delivered at a voltage of between 50 and 200 volts.

103. (New) The method of claim 36, wherein the electrical current pulses are delivered at a voltage of greater than 20 volts.

104. (New) The method of claim 36, wherein the electrical current pulses are delivered at a voltage of less than about 200 volts.

105. (New) The method of claim 36, wherein the electrical current pulses are delivered at a voltage of less than about 350 volts.

106. (New) The method of claim 36, wherein the step of delivering electrical current pulses comprises delivery of a plurality of pulses each of which are greater than about 250mA.

107. (New) The method of claim 36, wherein the hemodynamically compromising malfunction relates to an absence of cardiac contraction.

108. (New) The method of claim 36, wherein the hemodynamically compromising malfunction is an arrhythmia.

109. (New) The method of claim 108, wherein the arrhythmia is tachycardia.

110. (New) The method of claim 108, wherein the arrhythmia is asystole.

111. (New) The method of claim 108, wherein the arrhythmia is of an asystole type relating to absence of cardiac contraction

112. (New) The method of claim 108, wherein the arrhythmia is fibrillation.

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113. (New) The method of claim 36, further comprising the step of delivering a series of electrical current pulses through the patient's body, each pulse of the series having a voltage less than a normal defibrillation voltage level, after detecting the hemodynamically compromising malfunction but before delivering the series of pulses having at least one pulse having a voltage of a normal defibrillation voltage level.

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114. (New) The method of claim 36, further comprising the step of electronically interfacing the hemodynamically compromising malfunction detector with the other medical intervention.

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115. (New) An at least partially implantable device for maintaining some cardiac output of a patient's heart during hemodynamically compromising malfunction using electrical forcing fields, comprising:

- (a) a power supply;
- (b) a hemodynamically compromising malfunction detector operatively connected to the power supply;
- (c) pulse delivery circuitry operatively connected to the power supply for delivering multiple electrical current pulses through portions of the patient's upper body;
- (d) output control circuitry connected to the hemodynamically compromising malfunction detector, the power supply, and the pulse delivery circuitry for controlling the delivery of multiple electrical current pulses to the patient's upper body after the detection of hemodynamically compromising malfunction, the electrical current pulses having a voltage level less than the voltage necessary to defibrillate the patient, the output control circuitry providing pulses suitable for only producing contraction in the patient's body sufficient to maintain a level of cardiac output which is a fraction of the normal maximum cardiac output until cessation of the hemodynamically compromising malfunction or until other medical intervention is provided; and

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(e) an internal defibrillator cooperating with the output control means and adapted for delivering at least one internal defibrillation pulse to the patient's body .

116. (New) The device of claim 115, wherein the hemodynamically compromising malfunction detector is electrical.

117. (New) The device of claim 115, wherein the hemodynamically compromising malfunction detector is a pressure sensor.

118. (New) The device of claim 115, wherein the hemodynamically comprising malfunction detector comprises electrical and pressure sensing components.

119. (New) The device of claim 115, wherein the hemodynamically compromising malfunction detector is adapted to detect an arrhythmia.

120. (New) The device of claim 115, further comprising a cardiac output sensor.

121. (New) The device of claim 115, further comprising a blood pressure monitoring sensor operatively connected to the hemodynamically compromising malfunction detector.

122. (New) The device of claim 121, wherein the blood pressure monitoring sensor monitors cardiac output and further comprises an adjustment component for adjusting the electrical current pulse amplitude by the output control circuitry output to maintain an optimum therapy for maintaining cardiac output.

123. (New) The device of claim 115, wherein the hemodynamically compromising malfunction detector comprises a device for reassessing the presence of hemodynamically compromising malfunction at predetermined intervals and stopping

the electrical current pulses with the output control circuitry if the hemodynamically compromising malfunction is no longer present.

124. (New) The device of claim 115, wherein the hemodynamically compromising malfunction detector reassesses the presence of hemodynamically compromising malfunction and cardiac output at predetermined intervals and adjusts the electrical current pulses with the output control circuitry according to the reassessment.

125. (New) The device of claim 115, wherein the power supply and the output control circuitry deliver the electrical current pulses at a level to maintain cardiac output for at least about 30 minutes.

126. (New) The device of claim 115, wherein the output control circuitry delivers the electrical current pulses at a rate between about 60 and 200 beats per minute.

127. (New) The device of claim 115, wherein the output control circuitry delivers the electrical current pulses at a rate of less than about 200 pulses per minute.

128. (New) The device of claim 115, wherein the electrical current pulses are between 2 and 100 ms in width

129. (New) The device of claim 115, wherein the electrical current pulses are between 2 and 50 ms in width.

130. (New) The device of claim 115, wherein the electrical current pulses each comprise pulses which are greater than about 140 mA.

131. (New) The device of claim 115, wherein the electrical current pulses each comprise a train of at least 10 narrow pulses.

132. (New) The device of claim 115, wherein the electrical current pulses each comprise several narrow pulses.

133. (New) The device of claim 115, wherein the electrical current pulses each comprise up to 50 smaller pulses

134. (New) The device of claim 115, wherein the output control circuitry delivers the electrical current pulses at a voltage between 10 and 350 volts.

135. (New) The device of claim 115, wherein the output control circuitry delivers the electrical current pulses at a voltage between 50 and 200 volts.

136. (New) The device of claim 115, wherein the output control circuitry delivers the electrical current pulses at a voltage greater than 20 volts.

137. (New) The device of claim 115, wherein the output control circuitry delivers the electrical current pulses at a voltage that is less than about 200 volts.

138. (New) The device of claim 115, wherein the output control circuitry delivers the electrical current pulses at a voltage that is less than about 350 volts.

139. (New) The device of claim 115, wherein the power supply, the output control means, and the hemodynamically compromising malfunction detector operate to produce a cardiac output of between about 10% and about 90% of the normal maximum cardiac output for the patient.

140. (New) The device of claim 115, wherein the power supply, the output control means, and the hemodynamically compromising malfunction detector operate to produce a cardiac output of between about 20% and about 80% of the normal maximum cardiac output for the patient.



141. (New) The device of claim 115, wherein the power supply, the output control means, and the hemodynamically compromising malfunction detector operate to produce a cardiac output of greater than about 30% of the normal maximum cardiac output for the patient.

142. (New) A method for providing hemodynamic output of a heart during a hemodynamically compromising malfunction, comprising the steps of:

- 21  
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- (a) positioning a plurality of electrodes within portions of a patient's body proximate the patient's heart for delivery or receipt of electrical pulses transmitted through portions of the patient's upper body and heart;
  - (b) providing a hemodynamically compromising malfunction detector in the patient;
  - (c) detecting the presence of hemodynamically compromising malfunction or low cardiac output in the patient;
  - (d) delivering a first series of electrical current pulses, within the patient's body, after detecting the hemodynamically compromising malfunction or low cardiac output, the first series of electrical current pulses comprising at least one electrical current pulse having a voltage level suitable for defibrillating the patient's heart; and
  - (e) delivering a second series of electrical current pulses, within the patient's body/ the second series of electrical current pulses comprising a plurality of pulses having a voltage level less than a normal defibrillation voltage level but enough to force hemodynamic activity by contraction of the patient's heart and to facilitate a minimum level of cardiac output.
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